

PATENT APPLN. NO. 10/578,092
RESPONSE UNDER 37 C.F.R. § 1.116

PATENT
FINAL

REMARKS

The Office has maintained the rejection of claims 1-9 of the application under 35 U.S.C. § 103(a) over Sato, WO 02/076924, in view of Murai et al., U.S. Patent No. 7,097,944 ("Murai"), that was made in the Office Action dated January 22, 2009.

In the response filed April 22, 2009, to the Office Action dated January 22, 2009, applicants argued that a person of ordinary skill in the art could not have reasonably predicted the results of using the vinylene carbonate of the electrolyte of Murai in which the electrolyte comprises a nonaqueous solvent, a lithium compound and a combination of a vinyl ethylene carbonate compound and at least one of a group of compounds that includes vinylene carbonate, in the electrolyte of the nonaqueous secondary cell of Sato, WO 02/076924, in which a quaternary salt is contained in the electrolyte.

Applicants explained that an electrolyte containing a quaternary salt as in Sato has different properties from an electrolyte which does not contain such salt, as evidenced by Murai [sic, Sato] itself, and that the Office must provide evidence or proper reasoning showing an expected equivalency between the effects of vinylene carbonate in the electrolyte of Sato, WO 02/076924, and the effects of vinylene carbonate in the electrolyte

PATENT APPLN. NO. 10/578,092
RESPONSE UNDER 37 C.F.R. § 1.116

PATENT
FINAL

of Murai.

Applicants also argued that the comparative data in the application show that the use, in a nonaqueous electrolytic lithium secondary cell as in the present invention which contains an aliphatic quaternary ammonium salt of the formula (1), of an electrolytic solution containing VC in an amount of from 1 to 5 wt. % provides unexpectedly superior performance characteristics as opposed to the use of an amount of VC outside this range.

The Office has rejected both arguments. The positions of the Office are explained in the "Response to Arguments" section of the Final Action on pages 4 and 5.

The position of the Office concerning the use of VC in the electrolyte of Sato is that VC is known for use in "similar electrochemical environments." Essentially, the Office is taking the position that VC would be expected to provide good results in all secondary batteries and, therefore, would be obvious to use in the battery of Sato.

The position of the Office is not logical. If all compounds and elements known for use in "electrochemical environments" would be obvious to use in all secondary batteries, nothing would be patentable. Applicants emphasize that the Office has the initial burden of supporting a case of prima facie obviousness. To satisfy

PATENT APPLN. NO. 10/578,092
RESPONSE UNDER 37 C.F.R. § 1.116

PATENT
FINAL

such burden, the Office must provide technical reasoning explaining why, or provide evidence supporting a position that, the effect of VC in one electrochemical environment, i.e., the battery of Murai, would be expected to provide similar results in another and different electrochemical environment, i.e., the battery of Sato which includes an aliphatic quaternary ammonium salt. As noted above, the data of Table 1 of Sato show that the use of an aliphatic quaternary ammonium salt as an electrolyte salt for a secondary battery provides materially different results than a conventional electrolyte salt, TEA.

For the above reasons, the Office has not properly supported a case of prima facie obviousness and the 35 U.S.C. § 103(a) rejection should be withdrawn.

The position of the Office regarding the comparative data in the present application is that the results for Comparative Examples 7 and 6 are inconsistent and that Comparative Example 7 is within the scope of the present invention. However, the Office appears to have overlooked the fact that Comparative Example 7 in Table 2 was amended in the Preliminary Amendment [34(2)b amendment] filed with the application papers on May 3, 2006. The amount of VC in Comparative Example 7 is 5.3 %, which is not within the claimed range.

PATENT APPLN. NO. 10/578,092
RESPONSE UNDER 37 C.F.R. § 1.116

PATENT
FINAL

The present invention provides the excellent result of decreasing internal resistance while maintaining capacity retention. In the present invention, it is important to use VC in an amount of 1 to 5 % wherein capacity retention is 87 to 93 % as shown in Table 2, page 31, of the present application and internal resistance is low. When VC in an amount of 0.5 % as in Comparative 8 in amended Table 2 is used, capacity retention is 70.3 %. In case of an amount of VC of 5.3 % as in Comparative Example 7 in amended Table 2, capacity retention is the worst of all batteries tested, i.e., only 42%. In case of an amount of VC of 10 % as in Comparative Example 6 in amended Table 2, although capacity retention is 93 %, internal resistance is the worst of all batteries tested, i.e., 108 % (based on 100% in Comparative Example 4). Therefore, there is no inconsistency in the results of Comparative Examples 7 and 6.

The comparative data demonstrate non-obviousness of the present invention as recited in claims 1-9 of the present application and rebut any prima facie obviousness asserted by the Office to be supported by the combination of Sato and Murai.

Withdrawal of the 35 U.S.C. § 103(a) rejection and a notice of allowability of the claims of the application are in order and are respectfully requested.

PATENT APPLN. NO. 10/578,092
RESPONSE UNDER 37 C.F.R. § 1.116

PATENT
FINAL

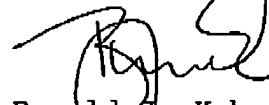
The foregoing is believed to be a complete and proper response to the Office Action dated July 8, 2009.

In the event that this paper is not considered to be timely filed, applicants hereby petition for an appropriate extension of time. The fee for any such extension may be charged to our Deposit Account No. 111833.

In the event any additional fees are required, please also charge our Deposit Account No. 111833.

Respectfully submitted,

KUBOVCIK & KUBOVCIK



Ronald J. Kubovcik
Reg. No. 25,401

Crystal Gateway 3
Suite 1105
1215 South Clark Street
Arlington, VA 22202
Tel: (703) 412-9494
Fax: (703) 412-9345
RJK/ff